REMARKS/ARGUMENTS

The Applicant thanks Examiner for the detailed Office Action dated November 27, 2006. In response to the issues raised, the Applicant offers the following submissions and amendments.

Amendments

Claims 1, 19 and 38 have been amended to highlight the features distinguishing the invention of the prior art. From reading the specification as a whole, the skilled addressee would understand that the bubble collapse point is positioned away from all solid surfaces so as to prevent the severe hydraulic force of cavitation from acting on part of the printhead.

Accordingly, the amendments do not add any new matter.

Claims – 35USC§103

Claims 1 and 19 *inter alia* stand rejected as obvious in light of US 4,797,692 to Ims in light of US 6,447,104 to Keil et al. The Applicant disagrees.

Amended claims 1 and 19 explicitly define that the gas bubble collapses to a point that is spaced from all solid surfaces within the printhead. This avoids the need for thick protective coatings on the heater elements to guard against cavitation corrosion. These coatings thermally insulate the heater from the ink. To form the gas bubble the heater element needs to heat through the coating to the ink which requires additional energy. This reduces the printhead efficiency.

Configuring the heater and the nozzle so that the bubble collapses to a void allows the heater to have less protective coatings. The bubble is generated using less input energy to improve the printhead efficiency.

The Keil printhead collapses the bubbles generated by the heater against the walls of the bubble forming chamber. As shown in Fig. 4, the vapor bubble 55 nucleates and grows over

the centre of the heater transducer 34. Then as it collapses, the ink inflow 50 pushes the bubble against the back wall 60 of the chamber and splits it into two smaller bubbles 55A and 55B. These bubbles 55A and 55B lodge in the pockets 66 where they finally collapse (see col.5, ll. 30-35 and col. 6, ll. 5-6).

While the pockets 66 are spaced from the heat transducer 34, the chamber sidewalls will still experience cavitation corrosion from collapsing bubbles. In contrast, the present invention configures the heater and the chamber such that the bubble collapses at a void. This prevents any cavitation corrosion.

Accordingly, Ims and Keil do not anticipate all the elements of amended claims 1 and 19 and so do not support a §103 rejection.

Claims 2-18 and 20-54 stand rejected as obvious in light of Ims and Keil in view of additional references cited against certain of the claims. As discussed above, Ims and Keil do not disclose the combination of features defined by independent claims 1 or 19. Likewise, Ims, Keil and Fukuchi fail to anticipate amended independent claim 38. The additional references cited also fail to disclose all the elements of the independent claims and accordingly, fail to support a §103 rejection. It follows that all the dependent claims are likewise novel and non-obvious.

It is respectfully submitted that all of the Examiner's objections have been successfully traversed. Accordingly, it is submitted that the application is now in condition for allowance. Reconsideration and allowance of the application is courteously solicited.

Very respectfully,

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